

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application. Where claims have been amended and/or canceled, such amendments and/or cancellations are done without prejudice and/or waiver and/or disclaimer to the claimed and/or disclosed subject matter, and Applicants reserve the right to claim this subject matter and/or other disclosed subject matter in a continuing application or otherwise.

1. (previously presented) A pathway determination system for a data storage system comprising N storage devices and more than N pathways for retrieving requested data from the data storage system, the pathway determination system comprising:

a sorter capable of receiving a read request and separating the read request into an appropriate segment size for sending to the storage devices of the data storage system;

an assigner capable of selecting a read permutation satisfying the received read request, the selected read permutation being based at least in part on a predetermined metric, and the assigner being capable of sending the selected read permutation to the storage devices of the storage system; and

a collector capable of receiving the requested data from the N storage devices in response to the selected read permutation being sent to the storage devices.

2. (previously presented) The system according to claim 1, wherein the assigner is further capable of generating the read permutations satisfying the received read request.

3. (previously presented) The system according to claim 2, wherein the assigner generates the read permutations before the read request is received.

4. (previously presented) The system according to claim 1, wherein the assigner comprises:

a permutation generator capable of generating the read permutations; and

a cost calculator capable of calculating an expense of each permutation based on the predetermined metric.

5. (previously presented) The system according to claim 4, wherein the cost calculator is capable of utilizing queue length information and estimated current cost information, and

wherein the permutation generator is capable of generating a reduced number of read permutations based at least in part on the queue length information and the estimated current cost information.

6. (previously presented) The system according to claim 5, wherein the cost calculator is capable of calculating the expense of each permutation further based at least in part on performance information received from the storage devices of the storage system.

7. (previously presented) The system according to claim 1, wherein the storage system comprises at least one failed storage device.

8. (previously presented) The system according to claim 1, wherein the metric is dynamically changed based at least in part on a change in operating conditions of the storage system.

9. (previously presented) The system according to claim 8, wherein the metric is periodically changed based at least in part on operating conditions of the storage system.

10. (previously presented) The system according to claim 1, wherein the metric is based at least in part on a current workload balance for the storage devices of the data system.

11. (previously presented) The system according to claim 1, wherein the metric is based at least in part on an estimated delay before the requested data can be retrieved from the storage devices of the storage system.

12. (previously presented) The system according to claim 1, wherein the metric is based at least in part on a number of outstanding requests in the queue of a storage device of the storage system.

13. (previously presented) The system according to claim 1, wherein the metric is based at least in part on a total queue for all outstanding requests that have been received by the storage system.

14. (previously presented) A method for determining a pathway for obtaining data stored in a data storage system comprising N storage devices and more than N pathways for retrieving requested data from the data storage system, the method comprising:

receiving a read request from a requester;

separating the read request into an appropriate segment and size for sending the storage devices of the data storage system;

selecting a read permutation from possible read permutations satisfying the received read request;

sending the selected read permutation to the storage devices of the storage system;

receiving the requested data from the N storage devices in response to the selected read permutation being sent to the storage devices; and

returning the satisfied read request to the requester.

15. (previously presented) The method according to claim 14, further comprising generating the read permutations satisfying the received read request.

16. (previously presented) The method according to claim 15, wherein generating the read permutations is performed before the read request is received.

17. (previously presented) The method according to claim 15, further comprising calculating an expense of each permutation based at least in part on the predetermined metric.

18. (previously presented) The method according to claim 17, further comprising:
generating queue length information and estimated current cost information, and
generating a reduced number of read permutations based at least in part on the queue length information and the estimated current cost information.

19. (previously presented) The method according to claim 18, wherein calculating the expense of each permutation is further based at least in part on performance information received from the storage devices of the storage system.

20. (previously presented) The method according to claim 14, wherein the storage system comprises at least one failed storage device.

21. (previously presented) The method according to claim 14, further comprising dynamically changing the metric based at least in part on a change in operating conditions of the storage system.

22. (previously presented) The method according to claim 14, further comprising periodically changing the metric based at least in part on operating conditions of the storage system.

23. (previously presented) The method according to claim 14, wherein the metric is based at least in part on a current workload balance for the storage devices of the data system.

24. (previously presented) The method according to claim 14, wherein the metric is based at least in part on an estimated delay before the requested data can be retrieved from the storage devices of the storage system.

25. (previously presented) The method according to claim 14, wherein the metric is based at least in part on a number of outstanding requests in the queue of a storage device of the storage system.

26. (previously presented) The method according to claim 14, wherein the metric is based at least in part on a total queue for all outstanding requests that have been received by the storage system.